

# Monetary policy in Norway – experience since 1992

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## Introduction

Norway has experienced a strong and continued upswing in the 1990s. Mainland GDP will, according to our latest estimates, have grown by some 18% in the five-year period from 1992 to 1997, implying an average annual growth rate of around 3¼%. Total GDP growth has been even stronger, due to higher oil production. As a result of increased oil revenues – as well as fiscal tightening and a cyclically induced increase in net tax revenues – the surpluses on the current account and the general government balance have also risen. The current account surplus was 7¼% of GDP in 1996, while the fiscal budget surplus was roughly 4½% of GDP. The petroleum sector currently accounts for around 13% of GDP, 38% of total exports and approximately 15% of total central government revenues.

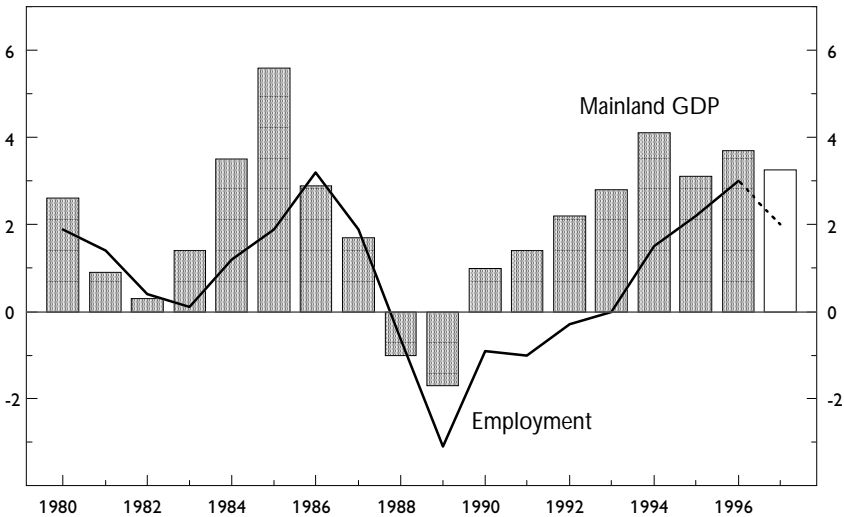
Economic growth is reflected in a strong employment performance. From 1992 to 1997, some 170,000 jobs will have been created (net), implying an average annual growth in employment of nearly 1¾%. In 1996 alone, employment grew by more than 2½%. Unemployment has fallen from a peak of close to 7% (OECD standard) in 1993 to around 4½%.

In spite of strong growth, Norway has so far not seen any significant upward trend in inflation. We now expect price inflation to average 2½% in 1997, and wage growth around 4%. Available evidence suggests, however, that the output gap was closed during 1995. Hence, there is a risk that continued growth – which so far shows no sign of slowing down – will eventually result in an overheating of the economy.

The operational target for monetary policy was formalised by Royal Decree in May 1994. The decree stipulates that Norges Bank shall aim at

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Chart 1  
**Growth in mainland GDP and employment**  
 Annual growth



Sources: Statistics Norway and Norges Bank.

maintaining a stable krone exchange rate against European currencies based on the range of the exchange rate maintained since the krone was floated on 10th December 1992. There are no explicit fluctuation margins. Norges Bank uses both interest rates and interventions to stabilise the exchange rate, but not to the same extent as under the previous fixed exchange rate regime. In the event of substantial changes in the exchange rate, monetary policy instruments shall be aimed at gradually returning the exchange rate to its previous range.

This paper discusses possible underlying explanations for the current continued upswing, emphasising some particular features of the Norwegian economy that set it apart from most other European economies. It then goes on to assess the formulation of monetary policy in light of these features and economic performance in the 1990s.

## 1. Principal forces behind developments in demand components and growth

The upswing that took off in early 1993 was initially driven by a combination of strong household demand, growth in traditional exports and robust growth in offshore investments in the petroleum sector. By 1995, the upswing broadened to include investment in the mainland business sector. Throughout the last five years, household demand growth has been vigorous. In 1996, household consumption grew by 4.7%, the highest growth rate in 10 years.

Table 1  
**Main economic developments, 1990–96**

|                             | 1990 | 1991 | 1992 | 1993 | 1994 | 1995  | 1996 |
|-----------------------------|------|------|------|------|------|-------|------|
| Domestic demand,            |      |      |      |      |      |       |      |
| mainland Norway . . . . .   | 0.1  | 1.3  | 2.3  | 1.3  | 4.7  | 4.0   | 4.7  |
| Private consumption . .     | 0.7  | 1.5  | 2.2  | 2.2  | 4.0  | 2.7   | 4.7  |
| Public consumption . . .    | 4.9  | 4.3  | 5.3  | 2.2  | 1.4  | 1.0   | 3.3  |
| Gross fixed investment .    | -7.0 | -3.3 | -2.2 | -3.1 | 13.5 | 13.3  | 6.9  |
| Oil investment . . . . .    | -2.5 | 29.1 | 12.2 | 12.1 | -7.2 | -13.6 | -4.4 |
| Exports . . . . .           | 8.6  | 6.1  | 5.2  | 3.2  | 8.7  | 3.7   | 10.1 |
| of which:                   |      |      |      |      |      |       |      |
| Crude oil and natural gas   | 3.2  | 17.2 | 11.3 | 5.9  | 3.2  | 8.7   | 3.7  |
| Traditional goods . . . . . | 10.1 | -2.7 | 5.7  | 3.2  | 12.5 | 4.2   | 10.3 |
| Imports . . . . .           | 2.5  | 0.2  | 0.7  | 4.4  | 4.9  | 5.5   | 6.5  |
| of which:                   |      |      |      |      |      |       |      |
| Traditional goods . . . . . | 9.2  | 0.6  | 4.1  | 1.2  | 13.1 | 9.4   | 9.3  |
| Gross domestic product .    | 2.0  | 3.1  | 3.3  | 2.7  | 5.5  | 3.6   | 5.3  |
| of which:                   |      |      |      |      |      |       |      |
| Mainland Norway . . . . .   | 1.0  | 1.4  | 2.2  | 2.8  | 4.1  | 3.1   | 3.7  |

Source: Statistics Norway.

Taken at face value, the performance of the Norwegian economy in the 1990s seems to reflect a combination of strong growth in demand components sensitive to changes in interest rates, some positive “exogenous” shocks – in particular related to investment in the petroleum sector – and fairly strong employment growth as productivity increases

were relatively low in the face of continued economic growth. We will argue that the principal underlying features which have made these developments possible are:

- The timing of the domestic cycle in Norway compared with other European countries.
- Activities in and revenues from the petroleum sector, which by and large have served to “cushion” changes in domestic demand and generally to improve the fundamental position of the economy.
- Sensitivity to interest rate changes, which has implications for the effectiveness of monetary policy.
- Real wage flexibility, at least on a macro level, and an elastic labour supply.

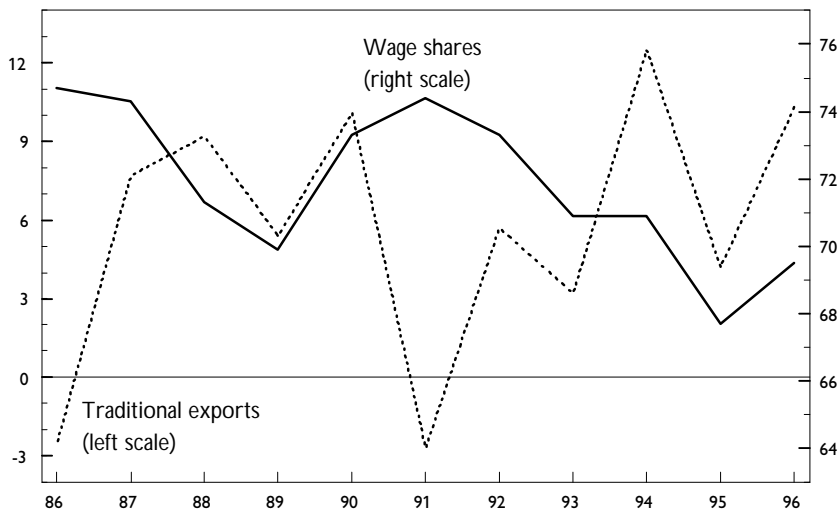
The first three points, connected to developments in demand, are discussed below. The last point, which is an essential element in determining price and wage developments, is discussed further in Section 2.

### *Timing*

Norway was hit by the “boom-and-bust” cycle of the 1980s much earlier than the other Nordic countries. Financial deregulation had a strong impact on domestic demand in the mid 1980s, while interest rate regulation prevented a necessary tightening of monetary policy. This resulted in particularly strong growth in consumption and housing investment, as households adjusted their balance sheets to market-based credit lines and negative real after-tax interest rates. Thus, private consumption grew some 15% in 1985 and 1986. When the current account was hit by the fall in oil prices in 1986, it was necessary to tighten both monetary *and* fiscal policy, which led to a significant downturn during the late 1980s – as opposed to most other European countries. Employment fell five years in a row, levelling off in mid-1992. Unemployment did not peak until early 1993 when the upswing was already well under way.

The timing of the downturn had two notable effects. First, it meant that the initial and “heaviest” adjustment in the mainland economy in the late 1980s could take place in an otherwise rather favourable external environment – unlike, for instance, the adjustment taking place in Sweden and Finland. Thus, the current account adjustment was facilitated by a strong export performance as traditional exports (from mainland industry) rose by more than 35% from 1987 to 1990.

Chart 2  
**Growth in traditional exports  
 and wage shares in manufacturing**  
 In percentages

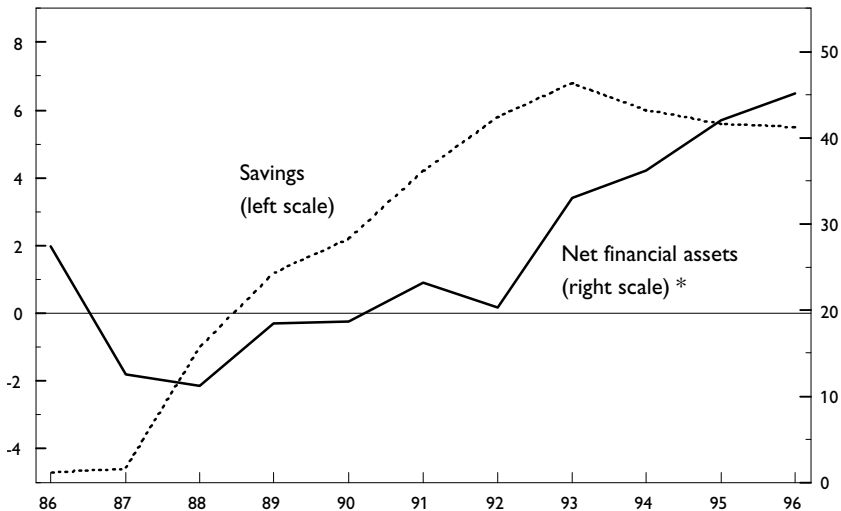


Sources: Statistics Norway and Norges Bank.

Second, the early downturn entailed that balance-sheet adjustment had already largely taken place by 1991–92. Household saving ratios and net wealth were back at historical levels, while the business sector had improved its earnings through lower wage shares. Indeed, many indicators suggest that the economy was already in a moderate upswing by mid-1992. Thus, the economy was well poised to take advantage of the international reduction in interest rates in 1993 – again unlike most other European economies.

It is probable that the economic trough around 1990 would have been much deeper, and subsequent drops in employment and GDP harder to reverse later on, if the boom in the mid-1980s had been allowed to continue for another year or two. Had it not been for the fall in oil prices in 1986, it is not unlikely that this could have happened. While hardly satisfactory from an analytical point of view, it would thus seem that fate – materialising as changes in oil prices – has had a significant impact on the current performance of Norway's economy.

Chart 3  
**Household net financial assets and savings**  
 As a percentage of disposable income



\* Break in series in 1992.

Sources: Statistics Norway and Norges Bank.

### *The petroleum sector and petroleum revenues*

In more general terms, it is Norway's fate to preside over substantial petroleum resources. Although this in itself should not be a cause for worry, it has nonetheless been a source of great concern for Norway's authorities in the last two decades, among other things because the dependence on petroleum may threaten the long-term stability of the economy. During the latest cycle, the petroleum sector has affected the economy in at least three different ways:

- Partly due to a positive technological shock – allowing increased extraction of oil from each well – and partly due to the development of new oil and gas fields, offshore investment increased by 60% from 1990 to 1993, thus providing a strong positive impulse to the mainland economy in the early phase of the upswing.
- Following the initial fall in 1986–87, tax revenue from the petroleum sector again started to increase, thus cushioning the impact of the

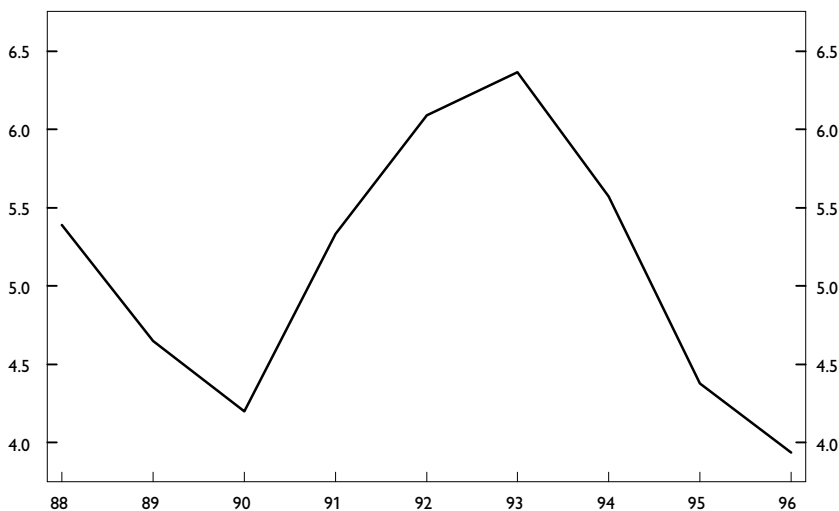
downturn on the fiscal budget and allowing a counter-cyclical fiscal policy.

- While petroleum production is not expected to fall below its present level before around 2010, the fact that the oil revenue is temporary and uncertain is perhaps the primary rationale for the underlying macroeconomic policy strategy, including the present division of responsibilities between fiscal and monetary policy.

Petroleum investment obviously had the most direct effect on domestic demand at a critical point in the cycle, namely in the first years of the 1990s. However, it is important to note that petroleum investment *fell* after 1993. Thus, petroleum investment cannot explain the continuation of the upswing thereafter. It would therefore seem that petroleum investments have served to *cushion*, rather than exacerbate, the cyclical movements of the economy.

The importance of petroleum revenue for public finances can be illustrated by looking at the development of the fiscal *non-oil* deficit. While even this deficit is now well within the Maastricht criterion (roughly 2% of

Chart 4  
**Demand impact of petroleum investment**  
As a percentage of mainland GDP



Sources: Statistics Norway and Ministry of Finance.

GDP), it peaked at nearly 9% of GDP in 1993. At the same time, fiscal policy contributed to a total demand stimulus of some 8% of GDP between 1988 and 1993. Without the parallel increase in oil revenue (government petroleum revenue amounted to approximately 6% of GDP in 1996), it is hard to believe that this fiscal expansion would have been possible. On the other hand, such counter-factual analysis becomes difficult when taking into account that the Norwegian economy would have had some other source of income if oil had not existed (and, as pointed out above, the downturn might never have happened). Whichever way one wishes to see this, the fact remains that oil revenue has provided a “safety net” for public finances by allowing a counter-cyclical fiscal policy. This policy has, in turn, both served to cushion the trough from 1988 to 1992 and to moderate growth through a similar fiscal tightening in the five-year period from 1992 to 1997.

### *Interest rate sensitivity*

The financial structure in Norway is characterised by a predominance of lending and borrowing at floating interest rates. This is especially true for the household sector. In 1993, around 64% of household loans were at floating rates, and another 25% had fixed rates adjustable within a year. For the private sector as a whole, around 55% of all liabilities were at variable rates and a further 23% at rates adjustable within a year.<sup>2</sup>

Norges Bank has not conducted any new studies of the interest rate structure, but there are no signs of any significant shift towards more fixed-rate borrowing. On the contrary, it seems likely that fixed-rate loans to some extent have been phased out as short-term rates have fallen considerably over the last five years.

The fact that a significant part of borrowing and lending is at variable rates means that changes in short-term money market rates have a comparatively large impact on the real economy. As can be seen from Chart 5, interest rates on bank loans and deposits are highly correlated with short-term money market rates.

High real after-tax interest rates contributed to prolonging the economic downturn in the beginning of the 1990s. The subsequent fall in interest rates probably contributed considerably to the higher growth. In

<sup>2</sup> R. Alstadheim and R. Madsen (1994): “A study of the interest rate structure of private sector assets and liabilities”. *Economic Bulletin*, no. 4.



Box 1

### **Structural and behavioural changes in Norwegian financial markets**

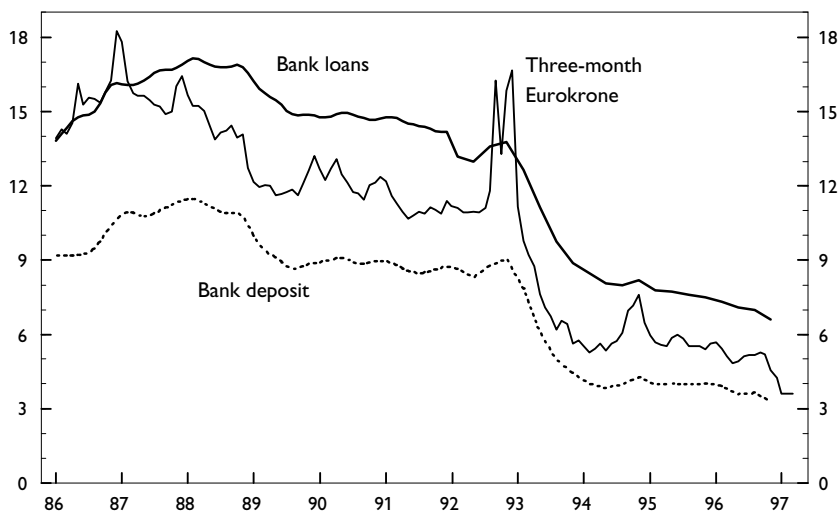
Both in the current and in the previous recovery, household demand has been a major force in the expansion. Private consumption increased by 18% from 1983 to 1986, and by 11% from 1993 to 1996. However, while the household saving ratio fell by nearly 10 percentage points from 1984 to 1986, it has, so far, declined by only 1 percentage point in the current recovery. Consequently, even though it has been increasing gradually, household gross debt is still modest compared with rates of more than 20% in the middle of the 1980s.

Developments in the 1980s have to be seen in the context of financial market liberalisation. Credit regulations were abolished at the end of 1983. Continued low, politically-determined interest rates and tax deductibility for interest payments combined with high marginal taxes led to strong credit demand. The real interest rate after tax was negative, around -2%, in 1983-96. Supply of credit was ample, partly reflecting strong competition and a focus on expansion among financial institutions which led to more aggressive lending practices.

The "bust" that followed the "boom" in the middle of the 1980s resulted in a significant balance-sheet adjustment among overextended households and a major banking crisis. The lessons from these developments have contributed to a more cautious attitude so far in the present recovery, on the part of both households and banks. The deregulation of financial markets meant that investments in Norway have to meet the required real return on international markets. Higher international real interest rates in the 1990s have thus increased the required return on business investment. In addition, the tax reform of 1992 meant an upward shift in the required return for firms and borrowing costs for households. Notwithstanding a fall in real after-tax interest rates to around  $\frac{1}{2}$ -1%, there is still only moderate growth in household lending, which suggests some change in behaviour. However, the jury is still out as to whether the more cautious attitude is a permanent change. Consumer confidence has increased significantly since this recovery started, and there is evidence that banks again are engaging in more risky lending activities.

Higher required returns may also have induced many firms to invest abroad, although this should also be seen in the context of a general tendency towards internationalisation in the business sector. In 1988, total Norwegian direct investment abroad amounted to about Nkr 25 billion. In 1995 (the last year for which comparable figures are available), direct investment abroad had risen to more than Nkr 140 billion. Preliminary figures suggest that there was a further significant increase in such investment in 1996.

Chart 5  
**Effective interest rates**



Source: Norges Bank.

1992, the household sector had net interest-bearing liabilities equal to 50% of disposable income, while interest-bearing liabilities in the enterprise sector amounted to 35% of GDP. This meant that the fall in interest rates had a positive income effect for the private sector.

Interest rates also have a strong demand impact through wealth effects. In Norway, around 80% of all houses is owner-occupied. The

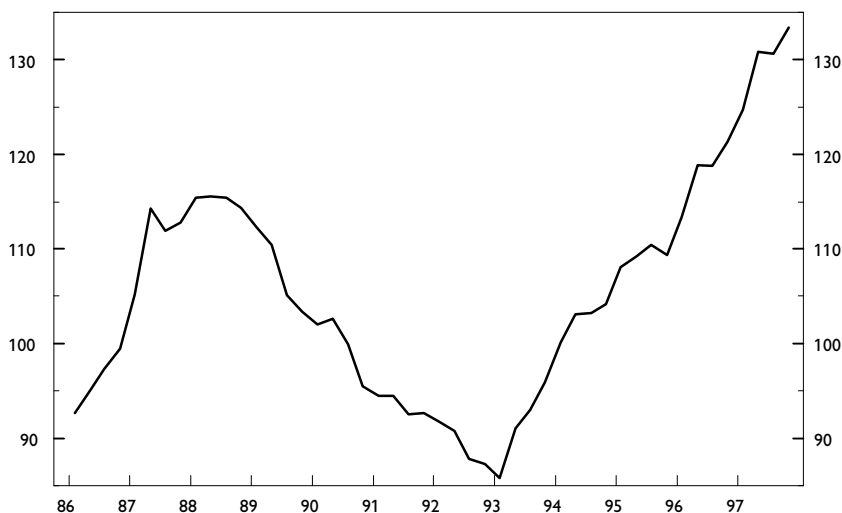
Table 2  
**Estimated effects of a 1 percentage point reduction  
in short-term interest rates**

In percentage points

| Effects on                         | After 2 years | After 4 years  |
|------------------------------------|---------------|----------------|
| Domestic demand . . . . .          | 1             | 2              |
| Employment . . . . .               | $\frac{1}{2}$ | $1\frac{1}{4}$ |
| Wages . . . . .                    | $\frac{1}{4}$ | 1              |
| Consumer price inflation . . . . . | 0             | $\frac{1}{2}$  |

Source: Norges Bank.

Chart 6  
**House prices**  
 Index 1990 = 100



Source: ECON.

sharp increase in house prices since 1993 – closely related to the fall in interest rates – has been one of the main factors contributing to the rise in private consumption. For example, the increase in house prices in 1996 alone (roughly 10%), increased household net wealth by some NKr 70 billion, or approximately 7% of GDP.

Calculations carried out using Norges Bank's macroeconomic model RIMINI may illustrate the effects of interest rate changes on economic developments (Table 2). Including wealth effects, we estimate that – at the present stage of the cycle – employment may rise by as much as 1% in the medium term as a result of a 1 percentage point reduction in interest rates. The long lags and strong medium-term effects implied in Table 2 are the result of wealth effects transmitted through (primarily) the housing market.

To conclude, the present economic upswing – particularly in light of the continued growth in household demand – may to a large extent be attributed to the sharp fall in interest rates in the first two quarters of 1993 (see Charts 5 and 6). Indeed, if we are to believe the estimates

presented in Table 2, *almost all* of the increase in employment from 1992 to 1997 can be attributed to this shift. While the effectiveness of monetary policy may have been a blessing in the past, the recent reductions in interest rates which were necessary to avoid an appreciation of the krone may be viewed with some concern. We will return to this issue when discussing monetary policy below.

## 2. Sources of price and wage inflation; wage formation and labour supply

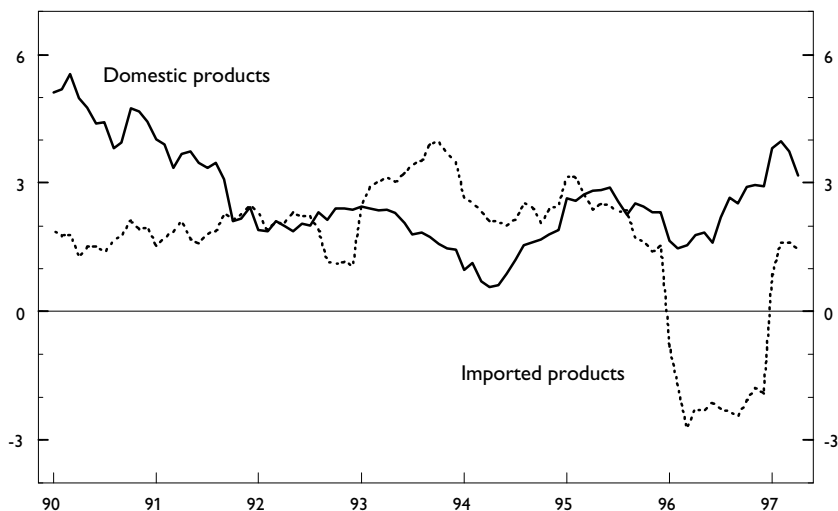
After the surge in consumer prices in the late 1980s – following a 10% devaluation in the spring of 1986 – consumer price inflation fell steadily from a peak of 10% in mid-1987 to just over 1% in early 1994. As illustrated by Chart 7, Norway's inflation performance closely follows the reduction in relative wage costs from 1989 onwards (Chart 9). Since late 1996, however, growth in CPI has again reached and exceeded interna-

Chart 7  
**Consumer price inflation**  
Percentage changes over twelve months



Sources: Statistics Norway and OECD

Chart 8  
**Consumer prices for imported and domestic products**  
 Percentage changes over twelve months



Sources: Statistics Norway and Norges Bank.

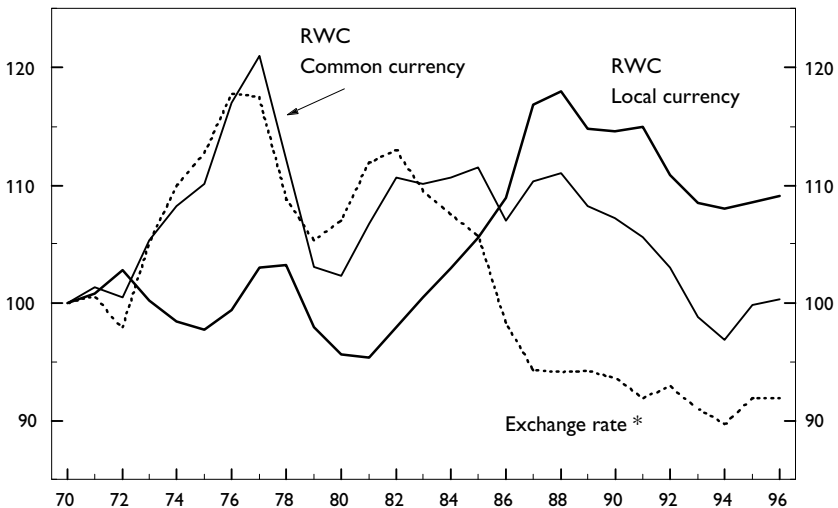
tional inflation. During the last two years, domestically generated inflation has also been above that of imported products, and the differential seems to be increasing (Chart 8).

So far, there is no strong evidence that inflation will accelerate dramatically. Wage growth in 1997, currently estimated at around or slightly below 4%, will be lower than previously expected. Furthermore, a fall in electricity prices will contribute to curbing consumer price inflation. In total, we expect CPI to increase by around 2½% in 1997. Underlying inflation (excluding indirect taxes and electricity) is estimated at about 2%. There is, however, a risk of overheating connected primarily to tight labour market conditions. Thus, there is a clear risk of higher wage growth in 1998.

Wage formation in Norway is characterised by centralised wage bargaining, combined with an explicit social contract called the “Solidarity Alternative”. According to this alternative,<sup>3</sup> the main trade union (LO)

<sup>3</sup> See NOU no. 26 (1992): “En nasjonal strategi for økt sysselsetting i 1990-årene” (“A national strategy for increased employment in the 1990s”).

Chart 9  
**Relative wage costs**  
 Indices 1970 = 100



\* Rising index = appreciation.

Sources: OECD, IMF, Statistics Norway, Ministry of Finance and Norges Bank.

is responsible for improving Norway's cost competitiveness by 10% between 1992 and 1997 through moderate wage growth, while the authorities are responsible for demand management through an active fiscal policy. A stable nominal exchange rate is seen as a precondition for this "contract".

So far, it seems that this strategy has been relatively successful. Chart 9 shows developments in relative wage costs in Norway vis-à-vis its trading partners. While the target for cost competitiveness has not been fully reached, relative wage costs have been reduced significantly. Private sector labour demand has soared, and private sector employment growth has accounted for 65% of total employment growth since 1992.

It may seem odd to tie wage moderation to cost competitiveness in this way, especially when taking into consideration that only a small part of Norway's labour force is actually directly employed in sectors exposed to international competition (Norway's exposed sectors are generally extremely capital intensive). However, the formulation of the "Solidarity

## Box 2

### Evidence of behavioural changes in wage formation

Wage growth (in manufacturing) has been more moderate in the period 1993–97 than indicated by the historical experiences embedded in Norges Bank's macroeconomic model RIMINI. On average, the model overpredicts wage growth by  $\frac{1}{2}\%$  per year from 1993 to 1997. The most significant prediction errors occurred in 1995 and in 1997.

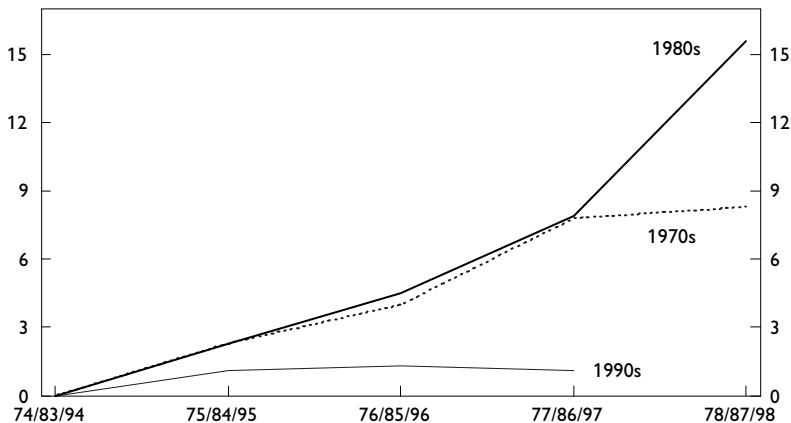
Econometric tests on the wage equation do not suggest, however, any structural breakdown of the wage equations, i.e. the errors that have occurred are within the "normal" uncertainty in the wage equations.<sup>4</sup> This could suggest that there has not been a significant shift in wage behaviour. The relatively moderate wage growth in the early 1990s may thus be related to low inflation and high unemployment by Norwegian standards.

Unfortunately, these tests can only be carried out on data up to 1994, as the Norwegian quarterly national accounts were significantly revised from 1995. Thus, it is not possible to re-estimate the wage equation due to a lack of revised national accounts data.

Chart A

### Relative hourly wages in manufacturing

Percentage difference between Norway and trading partners



Sources: Statistics Norway, OECD and Ministry of Finance.

<sup>4</sup> Evjen, Snorre and Ragnar Nymoen (1997): "Har solidaritetsalternativet bidratt til lav lønnsvekst i industrien?" ("Has the Solidarity Alternative contributed to low wage growth in industry?"). Norges Bank Working Papers, no. 2.

### **Evidence of behavioural changes in wage formation**

However, other evidence indicates that historical relationships may have changed. Chart A illustrates the difference between hourly wages in manufacturing in Norway and among our main trading partners in three recoveries. Relative wages grew by more than 15% from 1983 to 1986, while Norwegian wage growth has been roughly in line with our main trading partners from 1993.

Moreover, OECD estimates seem to indicate that the Norwegian NAWRU is around 4 $\frac{3}{4}$ %. The unemployment rate fell below this in 1996 and has continued to decline in 1997. While wage growth did accelerate in 1996, there are no signs of any further pick-up in 1997. On the contrary, based on the wage negotiations so far, wages may grow at a somewhat slower pace in 1997 than in 1996, and more in line with wage growth earlier in the 1990s.

There are several explanations for the (potential) change in the wage formation process in the 1990s. The concerted effort by the trade unions, the employers' organisation and the government to establish a "Solidarity Alternative" which aims at moderating wage increases in order to achieve full employment while maintaining price stability. In the context of a stable exchange rate policy, the social partners have recognised their responsibility for cost competitiveness and thus for employment. Moreover, the required return on capital has probably increased in the 1990s. This may result in a permanently lower wage share over the medium term.

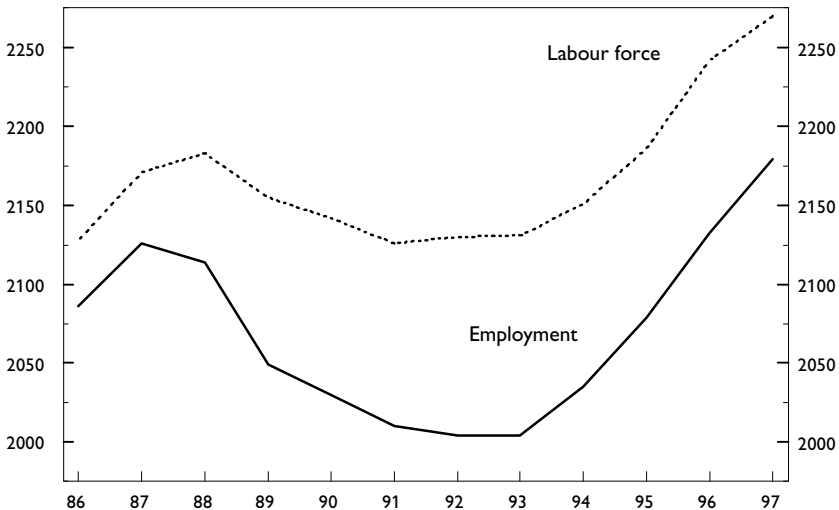
Based on this, our judgement is that the wage level has been permanently reduced compared to the levels predicted by the wage equation in RIMINI. In Norges Bank's wage forecast, it is assumed that there is no recovery of the wage level to the equilibrium level suggested by the wage equation; i.e. the impact on wage growth from the error correction term in the equation is neutralised. However, we recognise the uncertainty attached to this interpretation of events. In particular, there is uncertainty about the central trade union's ability to continue to restrain wage growth in an increasingly tighter labour market.

Alternative" has the important implication that unions in sheltered sectors are also tied to wage moderation – due to the centralisation of the wage bargaining system. Thus, improved cost competitiveness has resulted in a general reduction in overall labour shares, not just for those in exposed sectors. At least until 1996, this was certainly an important side effect.

High employment growth has almost been matched by similarly high growth in the labour force, as illustrated in Chart 10. While employment



Chart 10  
**Employment and labour force**  
 In thousand persons



Sources: Statistics Norway and Norges Bank.

will have grown by some  $8\frac{1}{2}\%$  from 1992 to 1997, the labour force will have increased by approximately  $6\frac{1}{4}\%$  during the same period. Hence, almost three fourths of the net increase in employed persons has come from *outside* the original labour force, which was high by international standards even in 1992 (68% of the total working-age population by OECD definitions).

Labour force participation showed a similar elasticity during the downturn in the late 1980s. Thus, the labour force *shrank* by  $2\frac{1}{2}\%$  from 1988 to 1992. This is certainly one reason for the similar rise in the labour force later on. However, this does not explain why the people who exited the labour force avoided a more permanent seclusion from the labour market. Nor can it fully explain the present participation rate, which for some groups is higher than ever recorded.

Two phenomena may have contributed to these developments. First, as the labour market slackened during the downturn in the late 1980s, recruitment into higher education soared. Thus, youth opted for education rather than unemployment, unlike the trends observed in many other

countries during recessions. Recorded youth unemployment rates were high at the time, but this reflected very low participation rates among youth rather than high absolute unemployment. As the cyclical situation improved, youth have again started to flow into the labour force, and recruitment into higher education has been somewhat reduced.

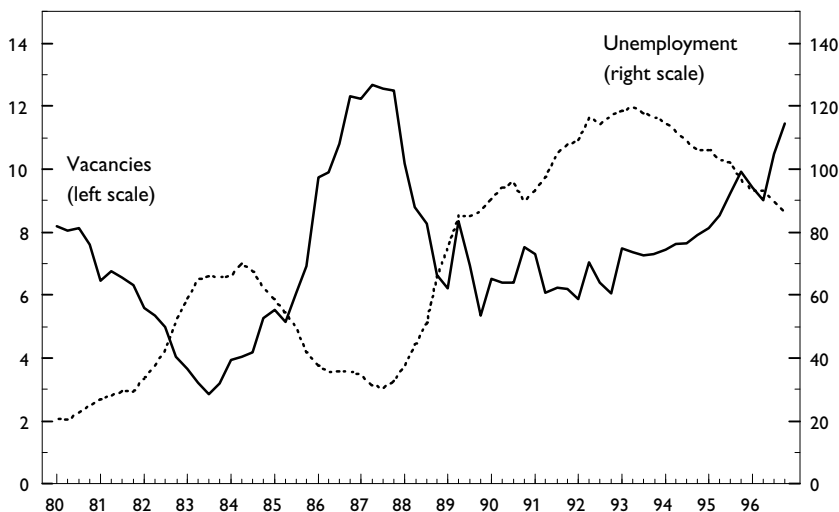
To some extent, this has been the result of government policies: funding was increased to accommodate the large increase in demand. In addition, the Norwegian unemployment benefit system is based on an insurance principle which does not allow benefits for people who have not previously been in the workforce. Hence, most youth were (and are) barred from the possibility of collecting benefits if they are unable to find work. While there is little empirical evidence to support this notion, it is conceivable that the lack of such benefits reduces benefit withdrawal rates and thus sufficiently improves the *ex ante* profitability of education – in spite of relatively low premia for educated labour.

Second, the Norwegian labour market is characterised – as are other Nordic countries – by high participation rates for women. Nevertheless, earlier empirical work suggests that labour participation among women is highly sensitive to real wages, so that when real wages increase, the female labour force tends to react elastically. This has probably contributed to preventing the build-up of bottlenecks in the labour market, especially in the public sector.

All in all, it is fair to say that the Norwegian labour market has performed better than we had reason to expect after the serious recession around 1990. However, as illustrated in Chart 11, several indicators now point towards a possible build-up of labour shortages, and that LO's capacity to moderate wages may come under increasing pressure from a tightening labour market. Real wage growth has picked up in 1996 and 1997, and although still moderate, inflation in Norway is now higher than among our trading partners. Obviously, a situation with significantly higher growth in employment than in the underlying supply of labour is not sustainable in the long run. Thus, proper management of macroeconomic policies will be crucial for avoiding an overheating of the economy in the coming years.

The general reduction in inflation and inflation expectations in Norway since the 1980s must be seen in connection with the change of monetary policy in 1986, with increased exchange rate stability. Given the then low credibility of monetary policy, it was necessary to anchor inflation

Chart 11  
**Unemployment and vacancies**  
 Seasonally adjusted, in thousand persons



Source: Directorate of Labour.

expectations. By and large, and despite a small depreciation following the turmoil in the currency markets in the autumn of 1992, it is fair to say that this framework has been a success in the sense that inflation has been brought down, and the credibility of Norwegian monetary policy has been restored.

It is thus difficult to establish a clear distinction between the results of monetary policy on the one hand, and the results of wage moderation from 1989 onwards on the other. As these policies are interconnected through the “Solidarity Alternative”, however, it is perhaps not very fruitful to seek to disentangle the effects of monetary policy from those of changes in wage behaviour. Similarly, it is difficult to assess the risk of a further increase in wage inflation without taking into account the current expansionary effects of monetary policy.

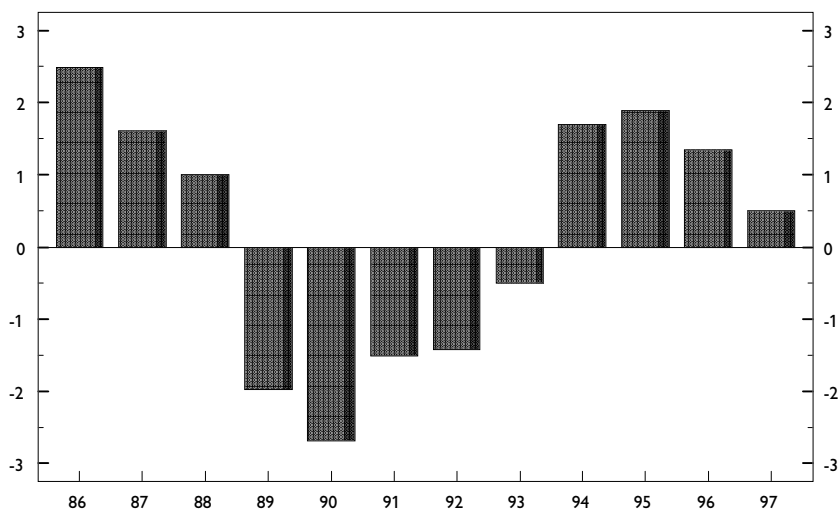
### 3. The role of macroeconomic policies

As is evident from the discussion above, the division of responsibilities in Norwegian macroeconomic policies is distinctly different from most other countries:

- Fiscal policy is responsible for both the long-term management of public resources (including large future social security liabilities and the structure of public services) and for demand management.
- Monetary policy is responsible for maintaining a stable nominal exchange rate against European currencies (and, hence, monetary policy cannot be charged with the task of stabilising demand).
- Incomes policy (the social partners) is responsible for ensuring moderate wage growth on a par with or below that of our trading partners.

This implies that policy makers must continuously consider at least two targets for fiscal policy, which tend to conflict with each other. On the one hand, the long-term sustainability of public finances and of the

Chart 12  
**Changes in the structural surplus**  
As a percentage of mainland GDP



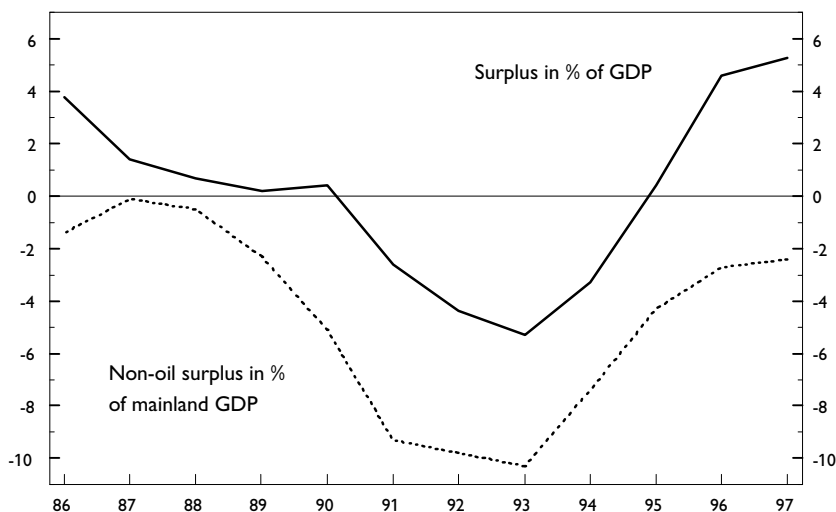
Source: Ministry of Finance.

structure of the public sector. On the other, the stabilisation of demand through fiscal policy.

In the recession, this conflict resulted in a fiscal policy that increased the structural public sector deficit, while moderating the impact of the recession through an expansionary policy stance (Chart 12). However, in spite of a total positive demand impact of around 8% of GDP from 1988 to 1993, fiscal policy all but failed to deliver stable demand conditions. It is likely that we can thank the flexibility of the labour market and wage formation for not falling into an even deeper recession, more in line with what was later experienced in other European economies.

Measured by the structural deficit, fiscal policy has been significantly tightened during the recovery in the 1990s, particularly in 1995. Over the last four years, the total demand impact of this policy is equivalent to some  $-5\frac{1}{2}\%$  of GDP, almost reversing the earlier expansion. As a result, the central government non-oil deficit (excluding petroleum revenue) has shrunk from a record 10% in 1993 to an estimated 2% of mainland GDP in 1997 (Chart 13).

Chart 13  
**The central government balance**

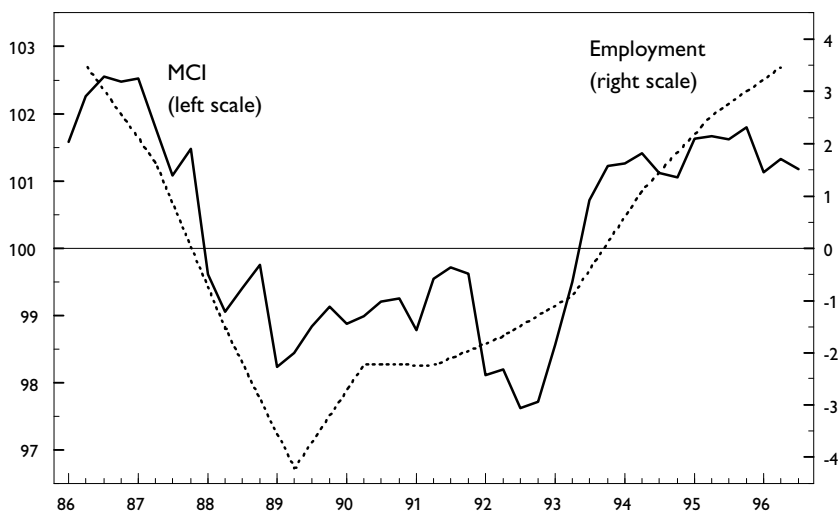


Source: Ministry of Finance.

Moreover, the tightening of fiscal policy has come through low expenditure growth. Underlying growth in government expenditure has been considerably lower than growth in mainland GDP from 1993 onwards. In 1996 public non-oil tax revenue, measured as a share of mainland GDP, was – at 47% – in line with the average for the EU, and roughly at the level established in the early 1980s.

While this policy has clearly moderated overall demand growth, it has again failed to deliver anything close to demand stabilisation (which, however, was not warranted during the first years of the upswing). In light of the general tightening of the economy, especially in the labour market, and the prospects for further robust demand growth in the next two to three years, it is not clear whether fiscal policy is sufficiently tight to prevent overheating and a further rise in wage and price inflation. In any case, we may conclude that fiscal policy has been clearly counter-cyclical and that one reason for the sustained upswing has been the moderating influence of a tight fiscal policy.

Chart 14  
**MCI and employment growth\***



\* Employment in business and industry.

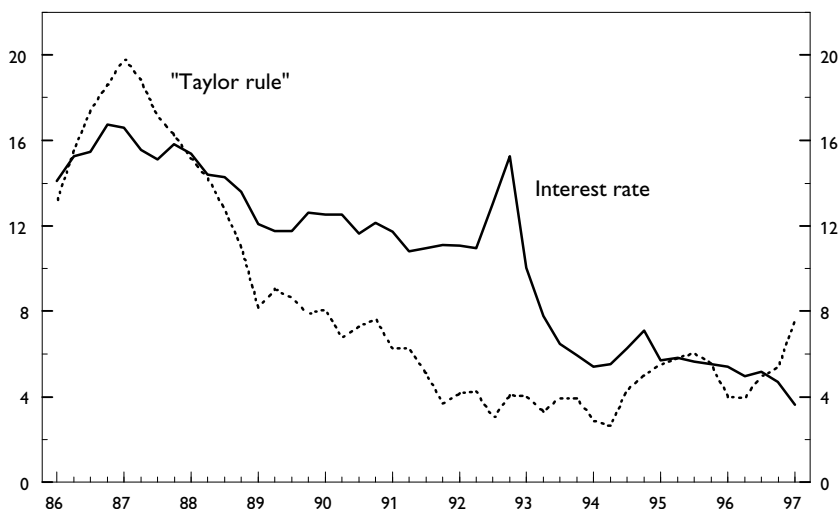
Sources: Statistics Norway and Norges Bank.

Monetary policy, on the other hand, has been clearly pro-cyclical, at least from 1989 onwards. Chart 14 compares the overall impact of monetary policy (measured by the MCI) with cyclical movements (indicated by growth in employment). From this chart, it appears that monetary policy was largely pro-cyclical from the mid-1980s onwards. However, the measures fail to recognise that, although employment started to fall in 1987, the Norwegian economy was still operating above normal capacity well into 1988. Using a simple Taylor rule to measure the effects of monetary policy, Chart 15 illustrates this point and also highlights the present conflict between exchange rate stability and domestic developments (the chart illustrates optimal interest rates in Norway according to a simple Taylor rule compared with actual short-term rates).

As has been highlighted previously in this paper, the monetary policy conducted may thus explain a large part of the cyclical movements, at least throughout the last 8 years.

However, it should not be forgotten that in any realistically conceivable monetary policy regime, Norway's interest rates must either be

Chart 15  
**Actual short-term interest rates and "Taylor rule" rates**



Source: Norges Bank.

heavily influenced by European rates (especially German rates) or Norway is likely to face extremely volatile nominal exchange rates over time. Given the openness of the Norwegian economy, such exchange rate variations would probably, in themselves, have created domestic cycles, through overshooting. Thus, in so far as the current cycle can be traced back to changes in monetary policy (and real interest rate changes), it is not clear whether this is the result of Norwegian or German monetary policy. Given the movements in German interest rates over the last 10 years, it might be closer to the truth to say that changes in German monetary policy have generally aggravated the Norwegian domestic cycle.

Nonetheless, there is little doubt that the exchange rate target – in isolation – has contributed to the expansionary effect of monetary policy, compared with alternative intermediate or long-term targets.

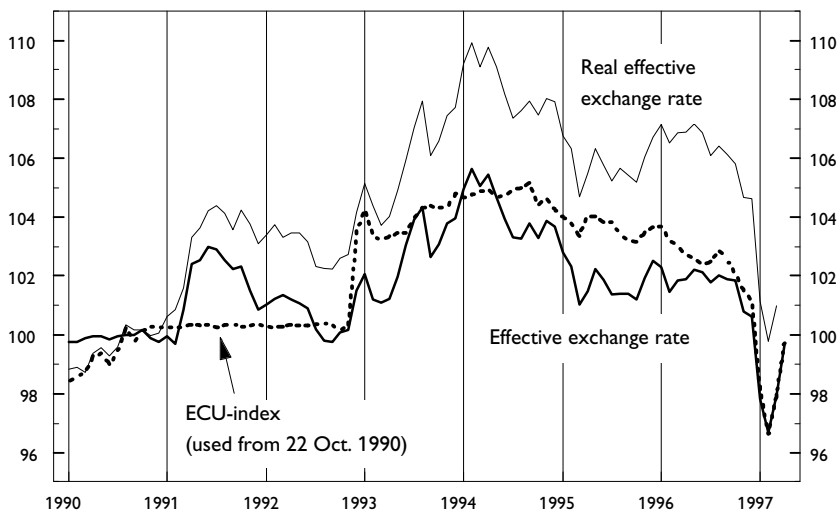
Moreover, it may be noted that impulses through international money and capital markets seem to have dominated the more traditional channel of demand impetus from the export sector. Hence, the bias towards strong pro-cyclical impulses from monetary policy – dominating other international demand impulses – may be a long-run and lasting effect of the deregulation of the capital markets in the 1980s. One possible consequence of this is that coming cycles will also tend to stem from changes in domestic demand (and monetary policy), rather than the more traditional channel of export-driven cycles. An important facet of this mechanism would then be that Norway's economy tends to react more violently to changes in interest rates than continental European economies. Norway may thus expect to *continue* to be out of phase with the cycles in other European countries.

Monetary policy has increasingly faced a balancing act between the exchange rate target and concerns regarding domestic developments. During 1994 and 1995, Norges Bank's rates remained unchanged, the exchange rate was very stable and foreign exchange interventions were modest. In spring 1996, however, the krone was exposed to growing appreciation pressure. In March 1996, Norges Bank lowered its key rates by a quarter percentage point in order to stabilise the exchange rate. Against a background of economic forecasts, indicating that growth in the economy would level off and inflation remain low, Norges Bank was fairly comfortable with this interest rate cut.

In September, the appreciation pressure against the krone intensified. At the same time, there were indications that the growth in the economy



Chart 16  
Exchange rate developments



Note: A falling index means appreciation.

Source: Norges Bank.

was stronger than previously envisaged. Norges Bank intervened heavily, buying foreign currency in order to stabilise the exchange rate. In the beginning of November, key rates were lowered by a further half percentage point. This only had a temporary effect on the foreign exchange market. In late December and early January, the appreciation pressure intensified: In the view of market participants, the krone could only appreciate given the huge surpluses on the current account and on the central government budget. On 10th January, Norges Bank decided to temporarily refrain from intervening in the foreign exchange market – invoking the “escape clause” in the foreign exchange regulation that: “... in the event of significant changes in the exchange rate, monetary instruments will be oriented with a view to returning the exchange rate to its initial range”.

In the three months to 10th January, Norges Bank made interventions equivalent to Nkr 75 billion, around Nkr 30 billion of which in January alone. In 1996, total interventions amounted to Nkr 90 billion – twice the amount set aside in the Government Petroleum Fund. In March, Norges

Bank resumed interventions in the foreign exchange market in order to accumulate reserves for the Petroleum Fund. These interventions are undertaken on a daily basis at around Nkr 3 billion per month.

After the “floating”, the krone strengthened to a level around 7% higher than the 1996 average against the ECU. Since March, the krone has weakened again – and by mid-May it was back at the same level against the ECU as in November 1996. The Norwegian foreign exchange market has been very “thin” after Norges Bank ceased to intervene actively to influence the krone exchange rate. As a consequence, limited capital movements may lead to substantial changes in the exchange rate. It is too early to conclude whether or not the recent depreciation of the krone reflects a more fundamental shift in expectations about the Norwegian economy and exchange rate developments. However, there is growing concern that the economy may now be more at risk in terms of inflation than previously expected.

#### **4. Conclusions on the formulation of monetary policy**

Prior to the current formulation of the exchange rate regulation from 1994, Norges Bank emphasised the long-standing tradition in Norway for establishing a nominal anchor through an exchange rate target. Norges Bank also pointed to the need for a long-term anchor for monetary policy: “In Norges Bank’s view the need for monetary guidelines robust enough for the economy to withstand serious disturbances calls for a clear declaration that low price and wage inflation will continue to be the long-term monetary policy objective. ... The main economic policy objectives, as set out in the Long-Term Programme, are to secure a durable basis for sustainable economic growth and full employment, and to this end the best contribution monetary policy can make is to maintain low price and wage inflation in the long term ... if the economy is affected by serious disturbances or long-term and wide cyclical fluctuations, the intermediate exchange rate target ought to be adapted to the long-term objective of monetary policy.”

In the Revised National Budget 1994, the Government (which is responsible for setting monetary policy guidelines) did not explicitly endorse Norges Bank’s view that low inflation should be the long-term objective of monetary policy. It said that monetary policy, together with

the other components of economic policy, should lay the foundation for sustainable economic growth and low inflation.

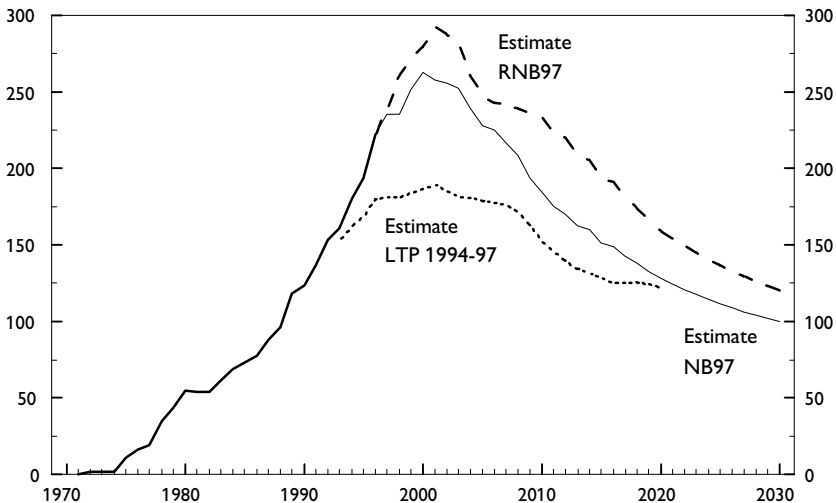
In 1994, when the current monetary policy framework was established, the outlook for the Norwegian economy was very different from today. The changes in the economic outlook, as well as our recent experience with a policy geared towards stabilising the exchange rate, raise the question of whether the current policy framework is sustainable in the longer term:

- Forecasts for petroleum production and the central government's petroleum revenue have been adjusted upwards several times. As a consequence, surpluses on the current account and the budget are (and will be) much higher than expected only a couple of years ago. A few figures may illustrate this point: In the spring of 1994, the Government expected a budget *deficit* of around NKr 15–20 billion in 1996–97. In 1996, there was a budget *surplus* of NKr 45 billion, expected to rise to NKr 57 billion this year. In the next few years, the current account surplus will amount to around 8–10% of GDP. According to the latest estimates, Norway's net foreign assets may exceed GDP within the next ten years.
- Once again we have experienced difficulties in stabilising the exchange rate within relatively narrow margins in an environment of free capital movements and closely integrated financial markets.
- The economic boom may lead to an increase in inflation. It is still an open question whether the current division of responsibilities in economic policy will be able to cope with this situation.

The Norwegian economy seems relative to move counter-cyclically to continental European economies. Norway is also exposed to asymmetric shocks through its heavy reliance on petroleum. With the benefit of hindsight, more flexibility in the monetary policy framework could have reduced the tendency of a pro-cyclical monetary policy.

Direct inflation targeting, as practised by a number of other countries, is the obvious alternative to the present framework. This would allow monetary policy to take more of the strain of cyclical adjustment, as this would occur naturally under an inflation target. Direct inflation targeting would probably also be more robust in the long term. In pursuing an exchange rate objective, there is always a risk that the peg must be abandoned – at least temporarily. In the absence of a clear-cut long-term objective for monetary policy, repetition of episodes like the one in

Chart 17  
**Production of petroleum**  
 In millions of cubic metres



Source: Ministry of Finance.

January may erode confidence in the policy framework. The same may happen if market participants view the exchange-rate target as incompatible with a commitment to low inflation.

Moving to an inflation target does, however, pose several problems.

First, it is unlikely that it will be possible to establish a broad political consensus for such a move in the short to medium term. Inflation is still relatively low and the economy is doing very well, and there is no obvious need for a change in the monetary policy framework. Entrusting Norges Bank with the pursuit of an inflation target will be seen as granting Norges Bank more independence, loosening the Government's control over economic policy. Traditionally, there has been widespread scepticism towards a more independent central bank in Norway.<sup>5</sup>

Second, a move to inflation targeting could be seen as posing a threat to the current – and so far fairly successful – economic policy framework. The Norwegian Government underlines the need for preserving the present size of the exposed sector and limiting domestic dependence on

<sup>5</sup> On most international rankings, Norges Bank is ranked among the least independent central banks.

oil revenues. In order to facilitate the transition to the post-oil era, it is seen as important to maintain a competitive mainland industry. A formal revaluation of the krone within today's monetary policy framework or a shift to inflation targeting, risking an immediate appreciation of the krone, would seem incompatible with this view. By conducting a sufficiently tight fiscal policy, accumulating the surpluses in overseas investments through the Government Petroleum Fund, a stable nominal exchange rate will be compatible with low inflation.

It has been argued that abandoning the exchange-rate target would pose a threat to discipline in fiscal policy: If monetary policy is perceived as taking care of stabilising the economy, there will be no limits on spending since the budget balance is not a problem. This risk is exacerbated by the fact that Norway has a minority Government which depends on the support of other parties in parliament. However, the threat of a tighter monetary policy to offset an expansionary fiscal policy could also serve as a disciplining factor. The assumption of an "irresponsible" fiscal policy also inherently includes the belief that politicians will not take long-term considerations into account when formulating policy.

The current framework for incomes policy further complicates the issue. As discussed above, a stable nominal exchange rate is seen as crucial for promoting wage moderation. By revaluing or floating the krone, the Government could jeopardise the current consensus – a risk it would probably not take if not strictly necessary. Given the strength of the economy, Norway could probably also afford to have "a little higher" inflation than its trading partners without risking a speculative attack against the krone.

There are, however, arguments against this line of reasoning. The external and internal "imbalances" (with positive signs) of the Norwegian economy could be seen as signalling a real appreciation of the krone in the years to come. A real appreciation could come about either through an increase in inflation or a nominal appreciation of the exchange rate. Real appreciation through higher inflation will only postpone adjustments of the competitive sector. If underlying forces work in the direction of a real appreciation, Norway cannot avoid a downsizing of the exposed sector by trying to maintain a stable nominal exchange rate. Furthermore, if inflation is allowed to rise it would be much more difficult to reverse a real appreciation if conditions change – for example, if oil prices fall substantially.

An inflation target could substitute the exchange-rate target as an anchor for wage claims in Norway's centralised wage bargaining system. This would, however, also have to be accepted by the trade unions – which seems unlikely at the present stage. There is also little experience with inflation targeting in countries with a centralised – and in many respects – co-operative wage bargaining system. Inflation targeting may create difficult game situations between the trade union and the central bank. Views could be different as to what wage increases are compatible with a given inflation rate. A centralised trade union which is not satisfied with the policy of the central bank could, for example, threaten with higher wage increases if interest rates are not reduced.

Finally, it could be argued that Norway should postpone any major changes in the monetary policy framework until EMU is well established, and the uncertainty surrounding this project is reduced.

## **Appendix**

### **Monetary policy operating framework**

As in many other countries, Norway has undertaken several changes in the monetary policy operating framework in recent years. These changes have been driven by mainly three considerations:

- The need to adapt the operational framework to the change in the underlying structural liquidity position of the banking sector. Up to 1992–1993 the banks were heavily dependent on borrowing from the central bank. In recent years they have moved to a structural surplus position. At present, Norges Bank generally steers the banks from a surplus position. Norges Bank supplies liquidity for shorter periods when liquidity is withdrawn from the market due to tax payments, etc.
- To (re)introduce a collateral requirement for borrowing in the central bank.

- To adapt the framework to real time settlement.

The current operational framework has the following main features:

- An overnight borrowing and deposit facility. The interest rates on these facilities constitute a corridor for short-term interest rates. At present the overnight borrowing rate is 5¼%, the deposit rate 3¼%. As banks are steered from a surplus position, the deposit rate is the most important key rate.
- Banks may borrow overnight against collateral. Total borrowing over the two-week borrowing period is limited. Norges Bank sets the limit as a percentage of operating capital, which is the same for all banks. After the introduction of real time settlement (planned for this autumn) banks may borrow an unlimited amount through the day, provided they borrow within the limits set by their collateral.
- Three instruments are used for market operations: Repurchase agreements (repos) (supplying liquidity), fixed-term deposits and fixed-term loans (not collateralised, in the process of being phased out). Depending on a final decision by the Board, it will be possible to trade fixed-term deposits between banks and between Norges Bank and the banks. Interest rates are normally determined by tender; e.g. American auction. Interest rates on market operations are not used for signalling purposes.
- Norges Bank intervenes frequently in the market. As the central government's working account is in the central bank, the liquidity

position of banks changes quite rapidly – making it necessary to supply or withdraw liquidity at irregular and short intervals.

- There are no reserve requirements.
- Bonds and certificates issued by the public sector, state banks, mortgage institutions and state-owned enterprises are accepted as collateral for borrowing in the central bank. Bonds and certificates issued by other states may also be used as collateral, provided that certain formal procedures are followed.